

## DESIGN OF SEMI-ACTIVE VIBRATION CONTROL DEVICE FOR COMMERCIAL PUMP SYSTEMS

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### ABSTRACT

This project is in collaboration with Grundfos and joins advanced engineering tools for evaluating pump systems and optimising the design of a vibration control device for the systems.

When pumps are in operation forced vibration is generated. The vibration migrates from the pump to the foundation and undesirable propagation may result in hazardous noise and durability issues due to harmonic motion near resonance of the system.

To change the dynamic properties of the system a vibration control device is needed between pump and foundation. The design of the device takes offset in vibration theory, along with semi-active vibration control strategies, where the frequency response of the system is changed depending on the state of the device. The state of the device must change the properties of the system and as a result change the eigenfrequency of the system.

The aim of the project is to design a device that can be applied for several Grundfos pumps to isolate the vibration of the pump from the ground.

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